

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A p channel field effect transistor used as a gate in
which comprising:

a liquid electrolyte ~~is used as a gate;~~ and

a diamond surface that serves as a channel ~~having mixed comprising a mixture of~~
hydrogen terminals, oxygen terminals, and amino terminals ~~serves as a channel.~~

Claim 2 (Currently Amended): A sensor ~~characterized by including the~~ comprising:
p channel field effect transistor according to Claim 1 and exhibiting a pH sensitivity through
the use of a shift of threshold voltage in the positive direction on ~~the~~ a surface having mixed
amino terminals and oxygen terminals in response to an increase in pH of ~~the~~ a liquid
electrolyte.

Claim 3 (Currently Amended): The sensor according to Claim 2, ~~characterized in that~~
~~the~~ wherein the increase in pH is 2 to 12.

Claim 4 (Currently Amended): The sensor according to ~~claim~~ Claim 2 ~~or Claim 3,~~
~~characterized in that urease is immobilized to the amino terminal on the surface with~~
~~glutaraldehyde (divalent aldehyde) therebetween, the threshold voltage shifts in the positive~~
~~direction in response to an increase in urea concentration and, thereby, the sensitivity to urea~~
~~is exhibited.~~ wherein the surface supports the immobilization of an urease and a glutaldehyde,
wherein the glutaldehyde is a divalent aldehyde, wherein the shift of threshold voltage occurs
in the positive direction in response to an increase in urea concentration so that the increase in
urea concentration is detected by the sensor.

Claim 5 (Currently Amended): The sensor according to Claim 4, ~~characterized in that~~
wherein the increase in urea concentration is 10^{-6} M to 10^{-2} M.

Claim 6 (New): A sensor comprising:
a diamond surface that serves as a channel comprising a mixture of hydrogen
terminals and amino terminals; and
a p channel field effect transistor that serves as a gate comprising a liquid electrolyte,
and that allows a shift of threshold voltage in a positive direction on the diamond surface in
response to an increase in pH of the liquid electrolyte in the p channel field effect transistor
so that the increase in pH is detected by the sensor.

Claim 7 (New): The sensor according to Claim 6, wherein the diamond surface
supports the immobilization of an urease and a glutaldehyde, wherein the glutaldehyde is a
divalent aldehyde, wherein the shift of threshold voltage occurs in the positive direction in
response to an increase in urea concentration so that the increase in urea concentration is
detected by the sensor.

Claim 8 (New): The sensor according to Claim 6, wherein the diamond surface is a
polycrystalline diamond surface, a nanocrystalline diamond surface, or a monocrystalline
diamond surface.

Claim 9 (New): The sensor according to Claim 3, wherein the surface supports the
immobilization of an urease and a glutaldehyde, wherein the glutaldehyde is a divalent
aldehyde, wherein the shift of threshold voltage occurs in the positive direction in response to

an increase in urea concentration so that the increase in urea concentration is detected by the sensor.